

WORK PLAN

I. Project Title and Project Purpose Statement

Title: *ClimaTeens: Developing Teen Leaders for Environmental Justice and Ocean Health*

Project Summary and Goals: Global climate change is presenting enormous challenges for individuals, communities, nations, and the world, including impacts on water resources, coastlines, infrastructure, health, food security, and ecosystems. Preparing the next generation of citizens –the ones set to inherit this world of challenges – to understand and address these challenges requires the development of climate science literacy and the ability of individuals to engage in the decision making process through leadership and civic engagement efforts (*Michigan State University Extension*, 2013). Young people can be powerful decision-influencers (Martinson and Gronholdt, 2008; The Ocean Project, 2011); however, the skills and fervor for civic engagement do not develop on their own. To be empowered to champion change in their communities, youth need a combination of encouragement and social support along with the necessary information and interest. Such efforts help them cultivate their civic “voices” – that is, the confidence and ease of conveying information and engaging in conversation –and effectively apply these voices through community-wide channels (Roth & Brooks-Gunn, 2003).

In 2013, with a vision for how youth leaders could build social capital and strengthen community resiliency, the New England Aquarium (NEAq) launched a pilot version of *ClimaTeens*, a program that offered a new approach to engaging youth in stimulating dialogue and action around climate change. During the pilot year, we found that the participating teens were willing and able to see the importance of community-level solutions, but that they were unfamiliar with the workings of civic systems and policy. Over the course of the year, we educated these teens on the basics of climate science and how to describe climate issues for peers and aquarium visitors guided by strategic framing theory, an evidence-based communications approach (Sweetland, 2014); informed them about climate policies and the process of social change; and strengthened their presentation and communication skills for engaging in discussions about complex issues, such as sea level rise and ocean circulation. These experiences enabled the teens to present at a youth climate action summit, at the NEAq World Oceans Day celebration, and at a special Earth Day event with EPA Administrator Gina McCarthy, Energy Secretary Ernest Moniz, and Senator Ed Markey.

NEAq’s overall goal for *ClimaTeens* is to empower teens to stimulate an increase in community dialogue, planning, and action to address the threats of climate change. We strive for participants to demonstrate an increased understanding of the science behind and impacts associated with global climate change; a stronger sense of confidence in sharing this knowledge with peers, adults, and community leaders; and a heightened efficacy in and likelihood of helping to make positive changes at the community level. With funding from the Environmental Protection Agency, we propose to add a significant public outreach extension to the existing program, aimed particularly at engaging a more diverse citizenry within Boston in discussion and decision-making regarding how to mitigate and adapt to risks to the city. The focus of these outreach activities will be to educate the public, particularly low-income and elderly residents

who are disproportionately affected, on the science behind and impacts of sea level rise as a result of greenhouse gas pollution, a priority of the EPA's Clean Air Act.

Project Location: New England Aquarium, Boston, MA 02110

Related Environmental Statute(s): Clean Air Act

Project's Community Climate Resiliency Focus: Educating residents who are vulnerable to the impacts of climate change about the impacts of sea level rise potentially exacerbated by increased pollution levels in relation to the Clean Air Act.

II. Environmental, Public Health and Community Climate Resiliency Information about the Affected Community

Risks of climate change are often expressed in global generalizations, such as the IPCC's statement:

“Climate change will amplify existing risks and create new risks for natural and human systems. Risks are unevenly distributed and are generally greater for disadvantaged people and communities in countries at all levels of development.” (IPCC http://www.ipcc.ch/news_and_events/docs/ar5/ar5_syr_headlines_en.pdf)

When risks materialize, however, they are experienced locally, not globally. Therefore, it makes sense to engage local people in planning efforts to mitigate risks so that they may be prepared in advance for damaging impacts.

Boston is among the leading cities, nationally, when it comes to addressing climate change through mitigation and planning for adaptation. According to the Boston Climate Action Plan, the city has reduced emissions by 15.5% since 2005, which is well on the way to the goal of 20% by 2025 and an 80% reduction in emissions by 2050. Despite Boston's position as a national leader in climate change preparedness, there is still a great deal to be done to protect the City and mobilize its population. For instance, many near-coastal neighborhoods face the threat of severe damage from storm surges. According to data assembled by the planning and design firm Sasaki Associates, 20% of Boston's population and 34% of Cambridge's population will be at risk of flooding during a storm surge event by 2050. They argue that now is the time to develop plans to either fortify (build structures to keep water out), adapt (design systems for people to live with periodic flooding), or retreat (move people and infrastructure to higher ground) (see <http://www.sasaki.com/project/360/sea-change-boston/>). There is no case in which people living with risk will be unaffected, so it is important to engage more people now in order to have as many citizens at the table as possible to shape the choices to be made.

Sea level rise is only one of the key climate-related risks associated with increasing greenhouse gases that will affect vulnerable populations in the Boston area. Other impacts, such as extreme heat waves and affiliated poor air quality, will disproportionately affect people living in buildings with limited air conditioning or filtration, which is true of many low-income families and elderly residents. *ClimaTeens* will acknowledge the range of risks and how they are addressed by the Clean Air Act. They will focus attention primarily on sea level rise as a core topic for attention. The efforts of participants will be focused primarily toward neighborhoods with higher concentrations of low-income households combined with a risk of flooding due to

storm surges, as well as toward retirement communities. Both facets of our community are lacking in general education and awareness around the subject matter, as well as having a heightened likelihood of being directly impacted by climate change outcomes. In addition to this, the *ClimaTeens* themselves represent teens between the ages of 14 and 18 who are poised to become engaged voters with voices that could resonate with policymakers.

During the first year of *ClimaTeens*, it has been our experience that members of the community are receptive to action geared at combating this global crisis. We aim to build on the good work underway, particularly to increase citizen engagement conversations about how communities can work together to create positive changes. Together with our partners, we expect to stimulate many new conversations in a manner that invites and welcomes citizens from all walks of life and demographic groups, particularly the youth who serve as future community leaders, to participate, raise questions, and share ideas for continued progress. As a result of these efforts, these Bostonians will both adapt their behaviors to prevent the root causes of, prepare for the impacts of, and become civically engaged in addressing climate change.

III. Organization's Historical Connection to the Affected Community

Since opening its doors on Boston's waterfront in 1969, the New England Aquarium has expanded into an international leader in aquatic research and conservation, a leading attraction for more than 1.3 million visitors each year, and an important resource for the region's schools, families, and individuals. Our mission is to combine education, entertainment and action to address the most challenging problems facing the ocean. NEAq education programs support this mission by offering opportunities for diverse audiences, both onsite and in the community, that inspire individuals of all ages to support healthy oceans, reaching large numbers of people and providing in-depth experiences.

Each year, NEAq delivers programs to more than 30,000 children and families at community centers, community festivals, libraries, science nights and admission programs. Through these efforts, we reach and inspire children and adults to better understand and care about the oceans and our connections to them. Through our Youth Development Programs, we strive to help participants to develop life skills, science and ocean literacy knowledge, and to inspire them to actively participate in ocean stewardship and lifelong learning. Our School and Community Programs connect the public to inspirational people, events and opportunities; help students learn about local marine life and habitats while thinking of themselves as scientists; and help educators incorporate ocean and freshwater topics into their curricula. Our goal is to extend core conservation messages to a broad audience while also engaging young people for long-term involvement in our mission-based programs.

In particular, *ClimaTeens* offers a big picture view of how one may influence or lend a voice to policies, or changes in policy, that create better systems. The program employs strategies to help young people learn about climate change, its impacts on ocean systems, and how to effectively discuss solutions with members of the public. The work we are proposing would build upon this successful program model by adding supervision to a new outreach program aimed toward predominantly teen and adult audiences in ways that invite and encourage participation. We will accomplish two new things: first, while our onsite educational programs and outreach efforts engage large audiences, these efforts will allow us to bring the conversation to a broader

audience, including members of two communities with elevated vulnerabilities to climate change: low-income and elderly residents. Second, we will introduce climate change and sea level rise as relevant topics that Boston-area citizens can come to understand and weigh in on.

IV. Project Description

i. Project Activities

The EPA Environmental Justice small grants program aims to “empower and educate communities to understand environmental and public health issues and to identify ways to address these issues at the local level.” Our proposed effort will extend and deepen a program to foster learning and leadership development among teens from low-income backgrounds and support them in engaging more people from vulnerable communities. We will focus primarily on issues affiliated with sea level rise, but we will also touch on other climate related issues that matter to public health and planning.

Trainings

With funding from the EPA, a new cohort of 15 *ClimaTeens*, recruited from current and past participants, will participate in a new and targeted outreach effort for at-risk communities. This new element of the program will extend from the existing *ClimaTeens* schedule beyond the academic year and will add at least four additional training meetings (two hours each) to continue improve participants’ abilities to talk about the issue of sea level rise. Since a new mix of participants and additional staff will be involved, these meetings also will serve as opportunities to build relationships that provide social support for the work to be done.

We will make final decisions about the content and schedule of trainings in the late spring of 2015, using information from assessment of our current program as a guide. At the moment, we anticipate addressing the following training themes:

- Public speaking for youth leaders that will teach youth the process for gathering their thoughts in a coherent fashion and guidelines for effective public speaking, led by The Center for Teen Empowerment.
- Scientific explanations of sea level rise, how it varies globally, and an exploration of sea level projections for Boston.
- Sea level rise and environmental justice: What do we know about demographics of neighborhoods in low-lying coastal areas and how might discernible patterns have emerged?
- Outreach strategies to support Boston’s Climate Action Plan in engaging at-risk communities.
- Steps for leading discussions in ways that will invite many people to contribute ideas and questions.
- Assessment planning for teen-led programs: What is important to assess? What measures could provide useful indicators?

During each training there will be time for participants to envision and practice elements of an outreach program. Participating teens will maintain responsibility and final control over what they do in each program they facilitate, but NEAq staff will serve as coaches and observers as participants rehearse introductory remarks, and role play scenarios where community members ask challenging questions.

Implementing Community Engagement Programs

Each participating *ClimaTeen* will be responsible for facilitating at least one public activity to engage community members in dialogue about climate change and sea level rise and how citizens can respond. Well-trained teens will facilitate “community conversations” for public audiences in neighborhoods where climate change is predicted to have a significant impact. Implementation will require each participant to identify a location, date and time, and to develop a program plan and an announcement or invitation to participate. It will be our goal for these conversations to be based mainly in low-income areas and near-coastal neighborhoods.

The teen leader for each program will facilitate a guided dialogue focused on core issues of sea level rise and other climate change impacts including ideas for preventing the worst and preparing for what is already underway. The goals of these dialogues are to encourage leadership development among Boston’s youth while increasing public awareness and empowering those who will be affected to take an active role in mitigation and preparation.

Each program will have at least one additional *ClimaTeen* as a co-facilitator. A member of the NEAq staff will also attend to offer support and to make observations based on the leader’s plan for the program.

Program Assessment for Teen-led Outreach

It is important that teens assess their efforts. Honest self-assessment is a critical skill for developing young people to practice, and assessment of early outreach programs will provide useful guidance for those that follow. Each program will include an assessment to gather information about participating citizens’ views about the discussion and its impact on them. *ClimaTeens* will devise these assessments with guidance from NEAq staff.

Teens will identify their expectations and hopes for the discussions and design a plan for gathering data to assess whether those outcomes were achieved. For example, a teen may say that it is desirable to have every person in the room contribute an idea or question at some point in the conversation. They could assess that by having an ally monitor the conversation. Another objective might be for people to contribute new ideas about participating in addressing the issues. One way to gather data about that would be to ask participants to write down any new ideas they have for steps they could take to help the city address sea level rise. Teen facilitators could then gather the ideas and catalog them.

Follow-up and Feedback

We will schedule several meetings with *ClimaTeens* participants and NEAq staff over the summer for participants to share a) reflections about how programs have gone so far, b) data and indicators of impact based on their program assessments, c) plans for upcoming community outreach, and, d) ideas about alternative approaches to addressing challenges that they have encountered.

Reaching At-Risk Communities

Some neighborhoods and regions face more risks than others from sea-level rise and other climate-related impacts. East Boston and Everett, for example, are classified as environmental

justice communities that have a mix of immigrants and minorities and many low-elevation areas at heightened risk of inundation (Gregg, R.M. (2010). *Climate Change, Coastal Flooding, and Environmental Justice in Urban Boston Communities* [Case study on a project of the University of Massachusetts-Boston and Battelle]. <http://www.cakex.org/case-studies/climate-change-coastal-flooding-and-environmental-justice-urban-boston-communities>). It is important to foster engagement and develop meaningful involvement from citizens in these communities.

Our strategy is to prepare high-school students to facilitate meaningful dialogs that address common gaps in understanding identified by others. Rachel M. Gregg reported that participants in the UMass Boston study tended to have more information about impacts and little knowledge of causes of climate change. That is consistent with research conducted by FrameWorks Institute as well (Volmert, et. al, 2013). http://www.frameworksinstitute.org/assets/files/cc_oceans_mtg.pdf). Dialog is a critical step to deeper engagement with issues.

In order to develop outreach locations and schedules appropriate for groups of people from environmental justice communities, we will first talk with organizations that provide others services where an educational outreach program would be a welcomed addition. We have already been working with Greenovate Boston, where colleagues suggested working with elder-services programs. We have contacted Action for Boston Community Development's Elder Services.

We have also engaged with *Alternatives for Community and Environment* which focuses on building power among communities of color and low-income communities. Our current *ClimaTeens* program plans include participating in one of their tours, and we will talk with colleagues from ACE about how our focus on climate change and sea level rise could reach at-risk communities in a complimentary way to their efforts that focus on other issues.

With advice from these organizations, we expect to be able to readily identify specific opportunities to engage groups of people from at-risk communities.

Timeline

	2015							2016			
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Activity											
Recruiting and Selection of ClimaTeens											
Training Meetings		XX	XX			X					
Scheduling Programs											
Implementing Community Conversation Events			X	XXX	XXX	XX	X				
Develop Assessment Tools Based on Existing Tools											

Community Conversation Program Assessment											
Feedback Meetings to Discuss Assessment				XX	XX						
Summative Program Assessment											
Final Report											X

Key: X indicates a product or benchmark

ii. Working with Partners

NEAq will be leading this effort, but we will tap into strengths of our partners:

Greenovate Boston is a program run by staff from Boston's Mayor's office, charged with helping to implement Boston's Climate Action Plan. Greenovate Boston will support *ClimaTeens* by connecting participants with city staff from several departments who can help build understanding of city governance and Boston's Climate Action Plan and steps among neighborhoods, businesses and city policies. This work fits well with Greenovate's engagement mission.

The Center for Teen Empowerment (TE) is a local non-profit organization with a mission to empower youth and adults as agents of individual, institutional, and social change. Since 1992, they have used the "Teen Empowerment Model" that uses group building, skill development, decision making, and behavior management methods built around a core set of beliefs. Those include a belief that the most effective forms of leadership are facilitative rather than command-oriented. Staff from Teen Empowerment will engage directly with NEAq staff and youth to provide training and consultation around facilitation and community action and dialogue. They will also consult in support of our recruitment plan and process.

V. Organizational Capacity and Programmatic Capability

NEAq has extensive experience successfully managing complex projects and administering grant awards. The institution regularly receives federal and restricted foundation awards requiring close monitoring of budgets and reporting of outcomes. A fully staffed Sponsored Programs office maintains records both in hard copy and through the financial software MIP (Abila). The organization receives an annual audit by an outside firm.

NEAq has the program capacity to undertake the proposed project. Education programs serve close to 60,000 children and adults every year through environmental science-based programming. We serve schoolchildren and teachers through school- and community-based programs; directed field trips to coastal or other aquatic sites; and workshops or classes at the Aquarium. For families and young children we offer on-site classes and field trips. For older youth and teens, we offer more focused, weeklong, camp experiences; summer- or academic-year paid internships; and one-day experiences such as Women in Science and the Teen Ocean Summit. Every year, NEAq Education and Access programs offer free admission to 15,000 children in school districts of need; bring traveling programs to 35,000 children at schools, afterschools, and community centers; employ 85 inner-city teen interns who gain leadership

skills; learn about marine science and museum education; and receive career and college guidance; welcome 2,000 of our neighbors for free open houses with bilingual interpreters; engage 1,500 adults and teens through free evening lectures on ocean conservation; and assist 2,500 teachers in engaging children in the classroom and beyond while meeting curriculum standards and preparing for high-stakes tests.

NEAq education program staff have a long history of working closely with numerous partners — both offering our resources and taking advantage of their assets to enhance our programs. Partners include the City of Boston; school districts in Boston and other nearby cities; agencies serving low-income, racially-diverse, and/or immigrant communities; area museums; Boston Public libraries; informal science centers and camps throughout New England; and area towns where camp and other programs explore coastal habitats.

VI. Qualifications of the Project Manager (PM)

John Anderson, Director of Education, will serve as the project Principle Investigator. He has directed the Education Department since 2005 and has facilitated several collaborative projects both locally and nationally. Currently, he is serving as Project Director for the National Network for Ocean and Climate Change Interpretation (see www.nnocci.org for more information) which has engaged pairs of colleagues from more than 80 institutions over the past five years. He will guide the overall plan and vision for the program and serve as an internal advisor and facilitator for decision making about any necessary mid-course corrections through the project.

Heather Deschenes, Manager of Youth Development Programs, serves as the Project Manager for ClimaTeens and will play that role for this proposed work. She has over 15 years of experience with New England Aquarium and has been managing a variety of youth development programs and projects including Teen Internships, summer camp programs, academic enrichment and service-learning programs for middle and high school students. She will serve as the primary point of contact for staff and collaborators and, being closely connected with Boston Public Schools and the City, will work within the community to recruit teens for internship and volunteer programs.

Sylvia Scharf, Coordinator of Education Programs, will serve as the lead facilitator of the program and will help to develop much of the program content and curriculum. Sylvia holds an MS in Environmental Studies with an Environmental Education concentration from Antioch University, New England. She has more than nine years of experience in program design and facilitation at New England Aquarium.

Michael Trumbower, Program Educator, will serve as a co-facilitator and coach for ClimaTeens participants and help support logistical coordination for outreach events led by teens. Michael holds an MS in Geological Sciences from the University of CA, Riverside. He has been facilitated a wide array of New England Aquarium education programs since joining our team in 2012.

VII. Past Performance in Reporting on Outputs and Outcomes

The New England Aquarium receives and manages many federal and foundation grants each year that require development, tracking and reporting of outputs and outcomes. We strictly

adhered to reporting requirements, documenting progress on objectives and goals for each funder. When budgets allow, we contract with outside evaluators to help develop our evaluation plans and logic models, to design surveys and other tools for collecting data, and to conduct formative and summative evaluations. Years of experience with these evaluators have provided experience that improves our ongoing internal program assessments. During the past three years we have managed many grants with outcome reporting requirements. In particular, federal wards from EPA and IMLS have focused on this aspect of reporting.

- EPA 96172001. (Kristen Conroy, EPA Project Officer). \$288,804 awarded June 2013. *Summer on the Marsh*.

The reports for this ongoing award discuss progress toward both outcomes and outputs detailed in the proposal. An evaluation plan was developed with an outside evaluator (RMC) who helps with ongoing assessments and tracking progress toward short, medium and long term outcomes. The reports also provide details on changes to the program that occurred during the grant period.

- EPA Subgrant through New England Environmental Education Alliance (Cynthia Menard, sub-grant coordinator.) \$4,868 awarded February 2013. *Brining New England Environmental Literacy Plans to the Next Generation*.

The report for this grant detailed outputs outcomes based on a logic model. All but two output targets were accomplished and the reasons for these exceptions described. Both were due to decisions made during ongoing program assessments. Outcomes included increased awareness among scientists and educators, endorsement of the need for such a program, and replicable processes. These were determined through surveys of participants and all showed success.

- IMLS. The Aquarium has 3 current grants from the Institute for Museum and Library Services. *Communities Connecting to the Oceans* (\$149,863 awarded September 2013. Sandra Narva); *Live Blue Service Initiative* (\$149,770 awarded September 2013. Steve Schwartzman); and *Cross-referencing Right Whale Archives* (\$24,712 awarded September 2014. Connie Bodner) In addition, we have recently completed *A New Strategy for Visitor Engagement: Interpreting to Mission* (\$145,975 awarded July 2012. Sandra Narva).

IMLS requires reporting on activities and progress toward intended outcomes. For most grants, outside evaluators assist with formative and summative assessments. For the smaller grant, this is done internally. In all cases, progress is tracked and changes are reported to IMLS staff throughout the grant period.

VIII. Quality Assurance Project Plan (QAPP) Information

NEAq will not need a QAPP.